

REMARKS

Claims 1-33 are pending. Claim 1 has been amended. Claims 19-20, 23-26, 28-29 and 31-32 have been withdrawn. No new matter has been added. Applicants respectfully request reconsideration of the rejections set forth in the Office Action dated April 19, 2005 in view of the preceding amendments and following remarks.

Applicants thank the Examiner for the courtesy extended during the personal interview with Applicants' representative on May 23, 2005. During this interview, video demonstrations of electroactive polymer devices were shown and several electroactive polymer devices were displayed; the rejections under 35 U.S.C. § 103 were also discussed.

Information Disclosure Statement

Attached herewith is a copy of the Information Disclosure Statement, PTO Form 1449 filed, and returned postcard submitted on November 11, 2003 (5 pages total). The postcard was stamped by the USPTO mail office on November 14, 2003 and verifies receipt by the USPTO of: a) the two pages of Information Disclosure Statement and b) the two pages of PTO Form 1449. A copy of the Information Disclosure Statement, PTO Form 1449, and returned postcard are provided herewith in response to the Examiner's request for a copy. Due to the apparent USPTO processing error, Applicants respectfully submit that no fees are due corresponding to the time difference between the date of receipt and date of submission herewith.

Election/Restriction

Claims 19-20, 23-26, 28-29 and 31-32 have been withdrawn without prejudice to further prosecution. Applicants submit claim 1 is generic to all the dependent claims and the dependent claims all pertain to the device recited in independent claim 1.

Rejections under 35 U.S.C. § 112

Claims 1 was rejected under 35 U.S.C. § 112, second paragraph. Claim 1 has been amended to remove any indefiniteness and now recites “wherein a portion of the polymer layer is capable of a strain of greater than 25% between a first position of the elastomeric dielectric polymer layer with a first area and a second position of the elastomeric dielectric polymer layer with a second area”. Applicants respectfully submit that the new claim amendments do not add new matter and the rejection under 35 U.S.C. § 112, second paragraph, is overcome. Withdrawal of the rejection under 35 USC §112 is respectfully requested.

Double Patenting

Claims 1 and 15-18 were previously rejected for non-statutory double patenting over commonly owned patent No 6,343,129 B1. Claim 1 has been amended and recites the limitation “wherein the polymer layer is capable of a strain of greater than 25% between a first position of the elastomeric dielectric polymer layer with a first area and a second position of the elastomeric dielectric polymer layer with a second area”. Applicants respectfully submit that amended claims 1 and 15-18 are patentably distinct from claims 1-2 of U.S. patent no. 6, 343,129. Should the non-statutory double patenting rejection remain despite the amendment, Applicants can submit a Terminal Disclaimer pursuant to 37 CFR § 1.321 with respect to U.S. Patent No. 6,343,129 B1.

Rejections 35 U.S.C. § 103

Claims 1-3, 21-22, 27 and 33 were previously rejected under U.S.C. 103 (a) as being unpatentable over Whitehead, et al. (U.S. Patent 4,885,783).

Claims 1-6, 8-9, 13-16 were previously rejected under U.S.C. 103 (a) as being unpatentable over Micheron (U.S. patent 4,400,634) in view of Whitehead.

Claims 1-12 and 14 were previously rejected over Bobbio (U.S. patent 5, 206, 557) in view of Whitehead.

Whitehead describes a material sandwiched between rigid metal plates (FIG. 2). The device is designed to produce small displacements (Col. 8, 32-44). The electrodes are rigid and non-compliant (Col. 5, 29-49).

Micheron describes a biomorph transducer with a material sandwiched between metal electrodes (see column 6, lines 45-46) and not capable of strains greater than 2-4 percent without destruction.

Table 1 of Bobbio (Col. 11) shows that the range of control of the device is on .4 micrometers or less. Bobbio notes drawings are not to scale (Col. 7, 63-64). During a movement of the device, a force is generated and the spacers elongate by only 1% or less (.01 micrometer divided by 1 micrometer) (see Col 9, 65-10, 1).

Independent claim 1 recites a strain limitation of greater than 25% that is well outside the scope of the prior art. The strain level of greater than 25% as now recited in the independent claim is not obvious in view of the prior art.

First, Whitehead, Micheron and Bobbio strictly employ relatively rigid piezoelectric materials. As one of skill in the art is aware, piezoelectric materials are stiff and not capable of strains now recited in independent claim 1. Thus, Whitehead, Micheron and Bobbio - either alone or in combination - do not teach or remotely suggest a compliant electroactive polymer and device as claimed.

Second, the cited references all use solid metallic electrodes. Those skilled in the art are well aware that such solid electrodes are limited to strains less than 2-4 per cent. A solid metallic electrode deflects via elastic deformation. Deformations of metal electrodes at strains greater than the elastic allowance lead to cracking of the planar metal and functional destruction of the electrode. Deflection at strain levels now recited in the independent claim would thus not be obvious in view

of Whitehead, Micheron and/or Bobbio since such deflection would destroy the electrodes taught by the references - and render the devices non-operable. It is respectfully submitted that an obviousness rejection based on modification of a reference must result in an operable device. See MPEP 82143.01: "The proposed modification cannot render the prior art unsatisfactory for its intended purpose".

To support obviousness, the Office Action points to Applicants' Specification (page 10) which describes a commercially available polymer that is used with the present invention. Applicants oppose this use of the Specification; it was the Applicants who discovered electroactive properties of this commercially available polymer, and use of this polymer was not known to those of skill in the art. Discussion of polymers suitable for use with the present invention in the Applicants' Specification (which describes the invention, not the prior art) is not an admission that these materials are readily useable by the prior art to achieve the present invention.

For at least these reasons, independent claim 1 is not obvious in view of Whitehead, Micheron and Bobbio, or any combination of these references.

Claims 2-18, 21-22, 27, and 30 each depend either directly from independent claim 1 and are therefore respectfully submitted to be patentable over the art of record for at least the reasons set forth above with respect to the independent claims. In addition, the dependent claims recite additional elements which when taken in the context of the claimed invention further patentably distinguish the art of record.

Withdrawal of the rejections under 35 USC 103(a) for are therefore respectfully requested.

Conclusions

Applicants believe that all pending claims are allowable and respectfully requests Notice of Allowance from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Applicants hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this patent Application is to be charged to Deposit Account No. 50-0388 (Order No. SRI1P011C1).

Respectfully submitted,

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Limited Recognition under 37 C.F.R. § 10.9(b)

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